SAFECode
Software Assurance Forum for Excellence in Code
Driving Security and Integrity

Software Assurance Forum for Excellence in Code

Directions for Effective Product Security Assessment

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About SAFECode

The Software Assurance Forum for Excellence in Code (SAFECode) is a global, industry-led effort to identify and promote best practices for developing and delivering more secure and reliable software, hardware and services

www.safecode.org

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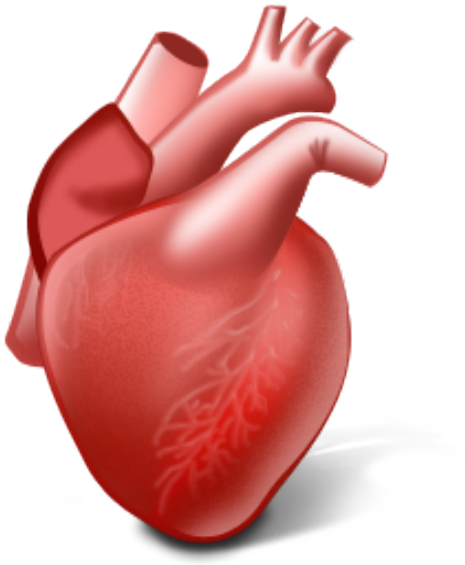
Learning from Science



How can you best evaluate the risk of a person to die from heart disease?

Method #1: Demand a Declaration

“I, _____ _______, solemnly declare that I will not die from a heart attack”

Method #2: Perform a Lab Test

- Point in time measurement
- Partial and incomplete
- Can be tricked

Measure blood pressure and cholesterol

Method #3: Assess Lifestyle & Preparedness

✓

Activities that maintain blood pressure and cholesterol low

Ability to respond quickly and efficiently

Assessing Product Security

How can you best evaluate the risk that an IT product might contain a software vulnerability?

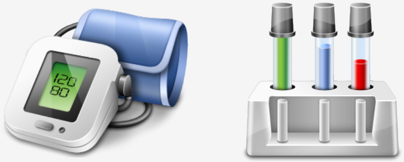
Three Methods for Assessing the Security of an IT Product

1

“I, _____ _______,
solemnly declare that I have no vulnerability in my product”

Demand a vendor declaration

2



Test the product

3

Assess vendor’s security processes

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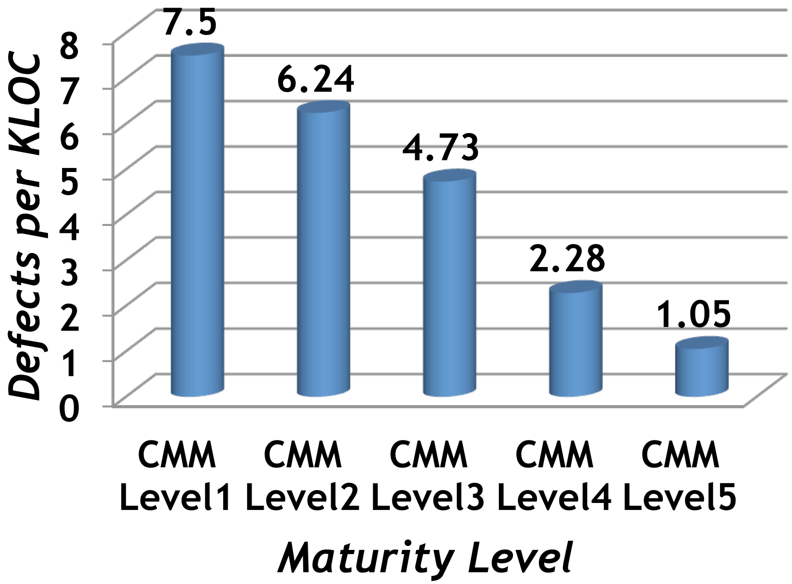
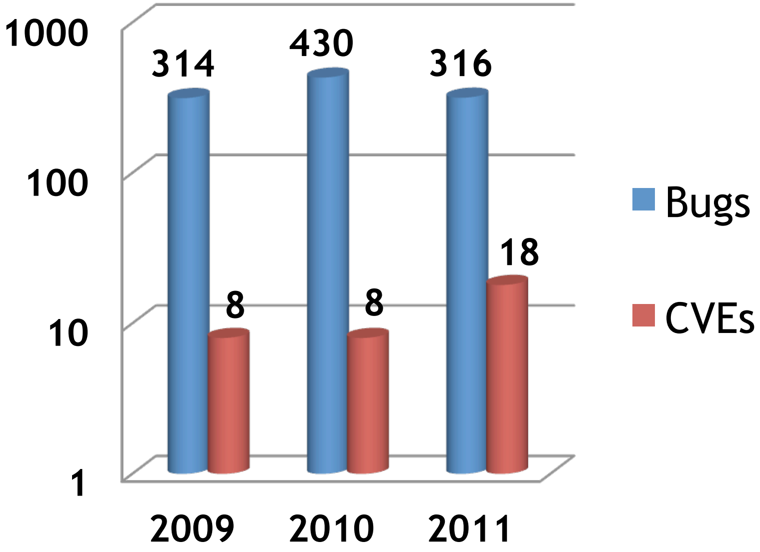
Assessing Product Security

1 Demand a vendor “no vulnerability“ declaration

Software Defect Density & Organization Maturity (SEI)



Confirmed bugs and CVEs for Apache Tomcat (log. scale)



Real software does have defects …

… some of which are vulnerabilities

2 Test or evaluate the product

Independent software security assessment

- Independent consultant / tool based assessment
- Point in time indicator dependent on the skills of the tester
- Partial and incomplete: Limited insights without access to internal design and source code
- Does not predict preparedness to unknown vulnerabilities.

Third party evaluations

- Current evaluations focus more on security capabilities than process
- No agreed upon international framework for evaluating secure software development process

Published vulnerability rate

- Unreliable measurement of the process outcome
- Greatly dependent on ease of access to product

3 Assess Vendor's Security Process ✓

Start with the vendor's public information:

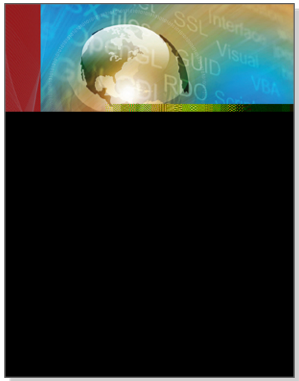
- Does the organization developing the product have secure software development standards in place?
- Do they publicly share their software assurance practices?
- Do they have a team with authority that provides the necessary oversight?
- Are developers properly trained to develop secure software?
- Do they have an easy to find way to report vulnerabilities on their product?
- Do they have a process in place to properly and expeditiously address reported vulnerabilities?

Secure Development Practices

Fundamental Practices for Secure Software Development - Second Edition

- **Focus:** Provide a foundational set of secure development practices based on an analysis of the real-world actions of SAFECode members

- **Key Objectives:** Help others initiate or improve their own software security programs and encourage the industry-wide adoption of fundamental secure development methods.



New: Practical Security Stories and Security Tasks for Agile Development Environments (July 2012)

Summary

- Software products will always contain vulnerabilities, no credible vendor will attest to the contrary.
- Tool-based assessment or vulnerability counts are point in time, subjective and incomplete
- Understanding a vendor secure software development process is the best predictor of the security of its product
  - Start with simple assessment of documented practices
  - New evaluation initiatives focus on vendor's process
    - Open Group's *Open Trusted Technology Provider Standard*
    - ISO 27034-1 Application Security – Overview and Concepts
  - SAFECode will continue to document proven vendor practices for secure software development that can serve as a reference

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